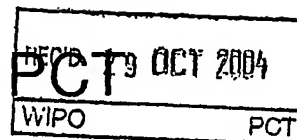


PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY



To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/US2004/004964

International filing date (day/month/year)
19.02.2004

Priority date (day/month/year)
27.02.2003

International Patent Classification (IPC) or both national classification and IPC
H04N1/407, H04N1/60

Applicant
POLAROID CORPORATION

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/004964

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/004964

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has:

☒ paid additional fees.

☐ paid additional fees under protest.

☐ not paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is

☒ complied with

☐ not complied with for the following reasons:

4. Consequently, this report has been established in respect of the following parts of the international application:

☒ all parts.

☐ the parts relating to claims Nos.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/004964

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-15,25
Inventive step (IS)	Yes: Claims	1-36
	No: Claims	1-15,18,21,25,28,31,35,36
Industrial applicability (IA)	Yes: Claims	1-36
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item IV.

The requirement of unity of invention for two or more groups of inventions is fulfilled only if there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features (Rule 13.2 PCT). The expression special technical features shall mean those features that define a contribution which each of the claimed inventions considered as a whole, makes over prior art.

Examining the possible correspondence by technical effect, one finds that:
the technical effect of the first invention is to correct the exposure in a nonlinear intensity space;
the technical effect of the second invention is to predict a desired exposure correction of the image based on extracted feature values; and that
the technical effect of the third invention is a to select a set of features by using a "leave-n-out" error calculation method.

Comparing the second and the third groups of inventions, they have in common the subject-matter of extracting a set of features from the image values. However, this subject-matter is very common and well known from the available prior art

This appears to show lack of corresponding technical effect. Consequently, their solutions defined by the special technical features don't allow for a relationship to be established between the said inventions, which would form a linking single general inventive concept (Rule 13.1 PCT). Therefore the technical relationship between the subject-matter of the 3 groups of claims required by Rule 13.2 PCT is lacking, and the requirement of unity of invention referred to in Rule 13.1 PCT is not fulfilled.

Re Item V.

1. The following document is referred to in this communication:

- D1 : EP 1 056 272 A (EASTMAN KODAK CO) 29 November 2000 (2000-11-29)
D1: EP-A-1 056 272 (EASTMAN KODAK CO) 29 November 2000 (2000-11-29)
- D2: PATENT ABSTRACTS OF JAPAN vol. 2000, no. 09, 13 October 2000 (2000-10-13) -& JP 2000 184270 A (RICOH CO LTD), 30 June 2000 (2000-06-30)
- D3: PATENT ABSTRACTS OF JAPAN vol. 2003, no. 05, 12 May 2003 (2003-05-12) -& JP 2003 008986 A (CASIO COMPUT CO LTD), 10 January 2003 (2003-01-10)
- D4: J. WESTON, R. HERBRICH: "Adaptive Margin Support Vector Machines" ADVANCES IN LARGE MARGIN CLASSIFIERS, 2000, pages 281-296, XP002299707 MIT PRESS
Retrieved from the Internet: URL:<http://stat.cs.tu-berlin.de/~ralfh/pub-article.html>

2. First Group, Claims 1 to 14

- 2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of **claim 1** is not new in the sense of Article 33(2) PCT.

Document D1 discloses in paragraphs [0027] to [0030]:

A method for correcting the exposure of a source image, the method comprising steps of:
transforming the source image from an image capture space into a nonlinear intensity space to produce a first transformed image;
correcting the exposure of the transformed image in the nonlinear intensity space to produce a corrected transformed image; and
transforming the corrected transformed image back into the image capture space to produce a second transformed image.

- 2.2 The subject-matter of independent **claim 8** corresponds in terms of other category to that of independent claim 1. The objections raised in respect of these latter claim, therefore, also apply, mutatis mutandis, to claim 8 which is thus not allowable under article 33 (1) PCT due to lack of novelty of its subject-matter (Article 33(2) PCT).

- 2.3 Dependent **claims 2-14** do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty (Article 33(2) PCT).

Document 1 discloses a transformation using a S-shaped curve and a gamma function (which is implicitly disclosed because the gamma is only a representation of the slope of the linear region of the S-shaped curve which is very commonly used in this field, and a hint of its use is also given in the counter example) in Paragraphs [0027], [0028] and Fig. 8. **Claims 2 and 9** are therefore not new.

Moreover, the formula claimed in claims 3 and 4 is only the most general formula describing such a curve. Therefore, **claims 3, 4, 10 and 11** are also not novel.

Document D1 discloses an exposure correction method consisting of adding an exposure offset to the transformed intensities to produce shifted transformed intensities (Claim 5 and 12) in paragraph [0030] and the use of at least one look-up table to transform intensities according to steps (A) to (C) (Claims 6 and 13) or even further performing a color mapping (Claims 7 and 14) in paragraphs [0031] and [0038]. **Claims 5 to 7 and 12 to 14** are therefore not new.

3. Second Group, Claims 15 to 34

- 3.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of **claim 15** is not new in the sense of Article 33(2) PCT.

Document D2 and D3 disclose in their respective abstract :

A method for processing an image, the method comprising the steps of :

(A) Extracting from the image values of at least one feature selected from a set of features, the set of features comprising features derived from: a thumbnail of the image, a luminance channel of the image, and a subset of the image including a plurality of pixels satisfying an activity threshold;

(B) predicting a desired exposure correction of the image based on the extracted feature values;
and

(C) correcting the exposure of the image by the predicted exposure correction to produce an exposure-corrected image.

- 3.2 Dependent **claims 18** do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty (Article 33(2) PCT).

Document 3 discloses a method wherein after identifying the active region of interest in the image and screening the image for activity, generates an average histogram as a weighted average of the histogram of the active region of interest and the histogram of the active image, and then extracts values of features from the average histogram (**Claim 18**) in its abstract. **Claim 18** is therefore not new.

- 3.3 The subject-matter of independent **claim 25** and its dependent claim **28** corresponds in terms of other category to that of independent claim 15 and its dependent claim 18. The objections raised in respect of these latter claims, therefore, also apply, mutatis mutandis, to claims 25 and 28 which are thus not allowable under article 33 (1) PCT due to lack of novelty of their subject-matter (Article 33(2) PCT).

- 3.4 Dependent **claims 21 to 24** do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Article 33(3) PCT). The features to which they respectively refer are all normal embodiments in the field of image processing and histogram analysis.

Therefore, claims 21 to 24 do not involve an inventive step in the sense of Article 33(3) PCT

- 3.5 The subject-matter of dependent **claims 31 to 34** corresponds in terms of other category to that of dependent claims 21 to 24. The objections raised in respect of these latter claims, therefore, also apply, mutatis mutandis, to claims 31 to 34 which are thus not allowable under article 33 (1) PCT due to lack of inventive step of their subject-matter (Article 33(3) PCT).

4. Third Group, Claims 35 and 36

4.1 The method described in **claim 35** is mere mathematical method, which only technical feature is to minimize a leave-n-out error. Features not contributing to the technical character of a claim do not contribute to inventive step. Therefore, the subject matter of claim 35 is the minimisation of the leave-n-out error to classify some features of a set.

Document D4 discloses, in its **abstract**, a method to minimize the leave-n-out error in order to classify some features of a set.

Therefore, the subject matter of claim 35 not allowable under article 33 (1) PCT due to lack of inventive step of its subject-matter (Article 33(3) PCT).

4.2 The subject-matter of independent **claim 36** corresponds in terms of other category to that of independent claim 35. The objections raised in respect of this latter claim, therefore, also apply, *mutatis mutandis*, to claim 36 which is thus not allowable under article 33 (1) PCT due to lack of inventive step of its subject-matter (Article 33(3) PCT).